Cultural Ecosystem Services and the Challenge for Cultural Geography

Abstract

Cultural ecosystem services are one of four services identified by the Millennium Ecosystem Assessment (2005) as critical to the support of human life on earth and therefore in need of proper valuation and protection. Cultural services seem to embody the objects of enquiry for cultural geographers interested in landscape, identity and place. However, potentially insurmountable epistemological challenges face the participation of cultural geographers in: a) the identification and evaluation of CES; and b) the operationalization of environmental governance. One challenge for cultural geographers is to make the relevance of their theoretical and conceptual insights felt in a field dominated by the natural sciences and scientific epistemologies. Meanwhile, the problems of defining and identifying cultural services in ways that make them compatible with provision, regulating and supporting services, even threaten the continued inclusion of cultural services in the ecosystem services approach. The concept of landscape seems to provide a shared intellectual terrain over which cultural geographers can work with others interested in cultural ecosystem services.

Introduction

There has never been a better time or a greater necessity for cultural geographers to get involved in the emergent politics and operationalization of the ecosystem services (ES) approach to the management of nature and the environment.[1] Whilst it is true that geographers of many different types have something to contribute to emerging debates about mapping and evaluating ES

and Cultural Ecosystem Services (CES) (Portman, 2013), it is cultural geographers interested in topics like landscape, identity, sense of place, belonging, and dwelling who I wish to mobilise because rarely do we find the object of our research at the heart of new policy directions. But the risks are great: geographers schooled in nearly three decades of intellectual effort to understand people's complex relationships with landscape and place will not easily find their voice in the multi-disciplinary clamour that surrounds the work of identifying, defining, measuring, and evaluating ES.[2] This is especially so when geography is characterised as useful only because "one needs to know where [ecosystem] services are located" (Portman 2013 p.187; Potschin & Haines-Young 2011; Ruhl 2010). Cultural geographers also share with colleagues interested in the politics of nature a trenchant critique of environmental governance in general and ES in particular (Robertson 2012; Yusoff 2011). Further, potentially insurmountable epistemological challenges face participation in: i) the identification and evaluation of CES; and ii) the operationalization of environmental governance. This, to summarise, presents two problems which I explain in this paper (along with a history and critique of ES and CES): the ability of cultural geography to make its relevance felt and the continued inclusion of CES in the ES approach.

Ecosystem Services

There is much debate over the definition of ES (Daily, 1997; Fisher et al. 2009; Gómez-Baggethun, 2010; Nahlick et al. 2012) which drawn attention to the semantic messiness around terms like 'services', 'goods', and 'benefits', which has a bearing on the place of CES within ES.

A widely used definition of ES comes from the Millennium Ecosystem Assessment (MA), which attempted to establish the scientific evidence for the conservation and sustainable use of ecosystems and identify their contributions to human well-being (Millennium Ecosystem Assessment 2005, p.v). Ecosystem services are:

> the benefits people obtain from ecosystems. These include provisioning services such as food, water, timber, and fiber; regulating services that affect climate, floods, disease, wastes, and water quality; cultural services that provide recreational, aesthetic, and spiritual benefits; and supporting services such as soil formation, photosynthesis, and nutrient cycling (Millennium Ecosystem Assessment 2005, p.v).

Provisioning, regulating, supporting and cultural services are linked to the broad concept of human 'well-being' which goes beyond the necessary conditions of existence (security, livelihood, food, shelter, clean air and water) to embrace the lofty aims of "good social relations" (social cohesion, mutual respect, and the ability to help others), and "freedom of choice and action" which provide the opportunity to be able to achieve "what an individual values doing and being" (see figure 1). This quadumverate of services and the link to well-being has subsequently become shorthand for a complex range of functions, relations, and objects of study (Fisher et al 2009; Daniel et al. 2012a).

INSERT FIGURE 1 HERE

ES as a dominant concept steering environmental governance has already generated a hefty academic and policy literature (Fisher et al. 2009; Gómez-

Baggethun, 2010; Portman 2013), although this tends to neglect the way the history of ES has conditioned its development and application (Portman 2013). Gómez-Baggethun et al. (2010) chart how the concept of ES emerged from the work of Ehrlich and Ehrlich (1981) (Figure 2), drawing on earlier ecological literature which was attentive to how human societies were served by nature and critical of the Neoclassic economic view that nature's resources could be replaced by capital.

Schumacher (1973) was probably the first author to use the concept of natural capital, whereupon the notion of ES gained momentum (Gómez-Baggethun et al. 2010). Norgaard (2010) maintains that 'ecosystem services' was intended to work as an "eye-opening metaphor" to build support for conservation amongst "a public deeply embedded in a global economy and distant from natural processes" (p.1219). In the space of about 15 years this metaphor was "transformed into a dominant model for environmental policy and management" (p.1219). Thus, as Ernstson and Sörlin (2013) note, the ES approach is dynamic, plastic and swiftly evolving, the product of human intellect and effort rather than an *a-priori* way of knowing the world. Notwithstanding the volume of work on ES, a fundamental definitional ambiguity goes unresolved, to which I now turn.

INSERT FIGURE 2 HERE.

Benefits and Services

As noted, the MA definition of ES has become dominant (Millennium Ecosystem

100 Assessment 2005, p.v; Daniel et al 2012a). One problem with the definition,
101 however, is that it conflates benefits and services: "the *benefits*… include
102 provisioning *services*…" (emphasis added). The vexed relationship between
103 benefits and services across a range of definitions is illustrated by Nahlik et al.
104 (2012: 28) (figure 3). In any given definition, ES can either lead to, or are the
105 same as, benefits (see also Satz et al. 2013; Chan et al. 2012). Different
106 definitions identify entirely "different suites of either purely ecological (equated
107 to ecosystem attributes) or purely anthropologic (equated to benefits) services"
108 (Nahlik et al. 2012, p.28).
109
110 INSERT FIGRURE 3 HERE.
111
112 Fisher and Turner (2008) and Wallace (2007, p.235) agree that the MA definition
113 mixes "processes (means) for achieving services and the services themselves
114 (ends) within the same classification category", compounding a flaw in the work
115 of leading practitioners such as Costanza et al. (1997), De Groot et al. (2002), and
116 Farber et al. (2006). The solution seemed to lie in greater definitional clarity
117 (Fisher et al. 2009) to allow for "meaningful comparisons across different
118 projects, policy contexts, time and space" (p.644). However, it is also possible to
119 glimpse in Fisher et al's (2009) assertion an attempt to shut out the messiness
120 and ambiguity in the MA definition. The problem with defining ES as the "*benefits*
121 people obtain from ecosystems" (emphasis added) is that these 'benefits' might
122 include "things outside of ecological systems such as imputed cultural meanings,
123 recreation, and spiritual fulfilment" – potentially transient, ephemeral, illusive,
124 contingent things that threaten to disrupt orderliness and comparability. To

125 create a more "transparent way to organize ecosystem services for use", Fisher
126 et al. (2009, p.644) and Boyd and Banzhaf (2007) have argued that ES are *not* the
127 benefits that humans obtain from ecosystems. Rather, ecological phenomena
128 must have human beneficiaries if they are to be considered services.
129
130 These semantic refinements have, to a large extent, not taken hold, overcome by
131 the scramble to start identifying, mapping, measuring, assessing and – most
132 importantly – *valuing* ES. Nahlik et al. (2012, p.28) suggest that the volume and
133 ambiguity of definitions has meant that the term 'ecosystem service' has become
134 "a catchall phrase that is now used to refer to anything from or within an
135 ecosystem that is beneficial to any living thing" (see also Seppelt et al. 2011). The
136 widely repeated maxim (see, for example, Daniel et al 2012a) that *services*
137 generate/are *benefits* that contribute to *well-being* (themselves relatively poorly
138 defined in the MA – see Fish 2011) somewhat underplays a complexity that is
139 semantic, epistemic and methodological.
140
141 The ES approach is rapidly moving into applied policy contexts (e.g. through The
142 Economics of Ecosystems and Biodiversity project and a new EU toolkit, both
143 aimed at decision-makers (TEEB 2013; European Commission 2013). The
144 ambiguity remains unresolved, though ES proponents continue to strive to be
145 exhaustive in compiling a "comprehensive set of services and value dimensions
146 in ecosystem assessments" (European Commission 2013, p.20). Portman (2013,
147 p.188; see also Potschin and Haines-Young 2011) is not alone in emphasizing the
148 absolute necessity of this to the veracity of the approach:
149

> the scientific community needs to deliver the knowledge and tools necessary to forecast and quantify the return from ES… and to aid professionals in explicitly and systematically integrating this knowledge into institutional frameworks.

I now focus on some of the issues raised for CES.

Cultural Ecosystem Services

In the MA definition of Cultural Services, the semantic ambiguity between services and benefits is pronounced (see figure 4), with the added complication that services (benefits?) are obtained 'through' spiritual enrichment, cognitive development, reflection, recreation, and aesthetic experiences. An extensive unpublished literature review prepared for the UK National Ecosystem Assessment Follow On identified these as *processes* (NEA, undated) but their relationship with service/benefits is far from clear. The 'processes' and the 'benefits' are not mutually exclusive, with recreation appearing twice. Substantive concepts seem synonymous, such as *values* (understood as beliefs or ideals about what is desirable or undesirable) and *value* (understood as monetary worth or a numerical quantity). Some benefits seem to be obtained in a way which by-passes the 'processes' all together, e.g. that "ecosystems influence the types of social relations that are established in particular cultures" (Millennium Ecosystem Assessment 2005, p.40).

INSERT FIGURE 4 HERE.

Having identified these services (benefits?), the MA had little to say about their condition (Figure 5), spawning research to fill the gaps. However, the ambiguity,

175 polysemousness and tervigersations of the MA document conditioned the nature
176 of subsequent research. Schaich et al (2010, p.270) observe that "the assessment
177 of trends in human use and of the status of CES is one of the most difficult and
178 least accomplished tasks in ecosystem services research".
179
180 INSERT FIGURE 5 HERE.
181
182 A range of alternative terminologies for what is provided to the sum of human
183 culture by ecosystems include *amenity functions* (Pinto-Correia and Carvalho-
184 Ribeiro 2012), *information functions* (de Groot 2006; de Groot et al. 2002) *life*
185 *fulfilling services* (Chee 2004) and *socio-cultural fulfilment* (Wallace 2007. See
186 also Milcu et al. 2013). Little consensus or conceptual clarity emerges from these
187 efforts (Milcu et al. 2013) and research on CES has been dwarfed by the effort
188 across the full range of ES (Gee et al. 2010; Rey Benayas et al. 2009; Schaich et al.
189 2010; Turner et al. 2003).

190 **Epistemic Gaps**
191 The epistemic 'problems' with ES arise because the approach has been conceived
192 of, developed, and applied within science disciplines where the objects of study
193 are the components of ecological systems and the systems themselves, and
194 extrapolated to something that is not normally the object of study of natural
195 scientists: culture. The ES approach conceives of the world as a series of complex
196 yet ultimately knowable objects, functions, processes and outcomes. They cannot
197 overlap, for if they do we run the risk of double-counting and overestimating
198 their economic value, ruining the argument that a rigourously valued ecosystem
199 is a necessary condition for proper management of the world's natural resources.

As Chan et al (2012, p.9) argue:

> everything must somehow 'fit' into an ES framework so that all that matters can be treated equally, and thereafter be compared and traded off against one another as more or less important, more or less 'valued' or more or less subject to protection, loss, or gain.

Thus, the ES approach attempts to still the world in a particular way but it has quickly become apparent that complexity of the world cannot be stilled, evidenced by the legion of articles that attempt to define, refine, capture and render the vigour of the world's ecosystems (see above). But the intellectual project of identification and classification continues apace, for example in the European Commission's proposal for the use of the Common International Classification of Ecosystem Services (CICES), developed for environmental accounting purposes (European Commission 2013).

Whilst Portman (2013, p.185) hails "progress towards a common 'language' of ES for practical and professional use", the attempt at a stable classificatory system frustrates its own object. The classification's hierarchical structure provides: i) an artificial sense of a causative relationship between divisions, groups and classes ('classes' for example can be "linked back to concrete identifiable service sources" (European Commission 2013, p.51); and ii) and a forced separation between activities, processes, objects, outcomes, and experiences, to avoid double counting (Gee et al. 2010). But in what sense, for example, is a physical and intellectual interaction not also representational?

INSERT FIGURE 6 HERE.

Although there is little consensus on CES, benefits or measure regimes, there is a agreement that CES are tricky and equivocal because they are intangible and subjective, with multiple values in different social contexts (Milcu et al. 2013; Potschin and Haines-Young 2013). This will not come as news to most cultural geographers but seems to be a source of increasing vexation to the main proponents of the ES approach for whom CES sit at odds with a natural science paradigm (Tenbert et al. 2012).

The question of value in CES is especially vexing, because CES are mobile, tractable, non-material, ephemeral, and perhaps fleeting. Refering to CES, Gee et al. (2010, p.350) wonder

> When appreciating a view, or a concept such as wilderness… is it the thing itself (e.g. the actual physical landscape), knowledge of the thing or the satisfaction that people derive from the thing, either by visiting it or simply knowing it exists?

For cultural geographers, separating out the intellectual, visceral, aesthetic, or embodied encounter from – say – a view runs counter to much intellectual effort invested in understanding the texture and complexity of every day life, most recently in relation to climate or environmental change, including the imbrications of memory and place (Bull and Leyshon 2010; DeSilvey 2012); dwelling (Ingold 2000); and familiar landscapes (Brace and Geoghegan 2011; Leyshon and Geoghegan 2012).

Dealing with the Cultural Services

In this section, I consider two contrasting responses to the 'problem' of CES' difference from other ES. The first is to engage the social and behavioural sciences in the task of 'integrating' CES into the overall ES approach. The second is to sideline the cultural services all together.

Integrating

The correspondence between science, social science and the humanities[3] features what I term 'epistemic distance decay'. Distance decay describes the effect of distance on cultural or spatial interactions and states that the interaction between two locales declines as the distance between them increases. Distance decay provides a neat metaphor for how different disciplines interact in the study of ES: the social science disciplines with at least some recognisably scientific ontological, epistemic and methodological concerns, feature most strongly as the source of possible solutions to the 'problem' of identifying, mapping, valuing and incorporating CES (Daniel et al. 2012a; Schaich et al. 2010). Conversely, qualitative, critical, interpretative approaches (which are epistemologically distant from the sciences) feature little, though their potential is recognised in some quarters (Satterfield et al. 2013). Three exceptions are Tenberg et al's (2012 p.25) attempt to add historical depth through a focus on cultural heritage, Potschin and Haines-Young's (2013) place based approach to ES, and Schaich et al's (2010) interest in CES and cultural landscapes.

Although Daniel et al. (2012a) identify work in landscape aesthetics, cultural heritage, recreation and tourism as having some potential for understanding CES

276 better, these fields are only attractive for their potential to "operationally define"
277 CES through a recognisable episteme, producing sociological models, expanding
278 systems for evaluation and informing trade-off negotiations "consistent with the
279 larger set of ES" (p.8812). This is to perhaps underplay the long history of work
280 in these fields but contributes to the overall impression that the dominant
281 disciplines in ES research have a limited view of the relevance of other
282 disciplines. Meanwhile, disciplines like tourism and leisure research have
283 perhaps not done enough to assert their relevance and applicability.
284
285 Daniel et al (2012a) argue that work from social and behavioural scientists
286 looking at ecological structures and cultural benefits could be used more
287 effectively to "integrate cultural services into the broader ES framework"
288 (p.8813) but this has been "retarded" by the characterisation of CES as
289 intangible, subjective, and difficult to quantify in biophysical or monetary terms.
290 Social and behavioural work can, they assert, provide a "science base" for the
291 better integration of CES into the ES framework.
292
293 The confident assurance with which Daniel et al. (2012a, 2012b) assert that the
294 right sort of approach can corral the intangible, subjective, difficult-to-quantify
295 makes for uncomfortable reading for any academician whose theoretical
296 predilections challenge the dominance of science as a way of knowing, with its
297 attendant claims to objectivity and truthfulness (Davies and Burgess 2004;
298 Whatmore 2009; Livingstone 2003). Even Schaich et al. (2010) and Milcu et al.
299 (2013), who promote the view that cultural landscapes has much to offer CES,
300 can do little more than call for more dialogue between different research

301 communities on the grounds that, notwithstanding their different theories,
302 concepts and methods, they share a common object of research: "the demands
303 people place on, as well as benefits people obtain from, ecosystems and
304 landscapes". (p.270).
305
306 Despite an evident willingness on the part of scholars of heritage and cultural
307 landscapes (amongst the few disciplines to attempt to get involved with ES) to
308 open a dialogue, a recent review of crossdisciplinary research contributions to
309 the United Kingdom's National Ecosystem Assessment found that the UKNEA
310 "integrated knowledge more successfully between neighboring disciplines, but
311 struggled to overcome barriers between natural and social science" (Lawton and
312 Rudd 2013, p.149). The consequence of this may be the sidelining of CES, which I
313 consider now.

314 ***Evicting***

315 Integrating CES into the ES approach by narrowing their scope or finding a way
316 to equivocate their complexity may be unpalatable for scholars who are
317 committed to understanding the messiness and complexity of our social worlds.
318 But far more seriously for both the status of CES and cultural geography's role in
319 future environmental governance is the possible relegation of CES out of the
320 main four services (provisioning, regulating, supporting and cultural) altogether
321 (Fisher et al. 2009; Tengberg et al. 2012). For example, CES are at risk from
322 attempts (outlined above) to thoroughly disentangle benefits from services.
323 Fisher et al. (2008, 2009) "define ecosystem services to be about ecological
324 phenomena (e.g. not cultural services which we see as very valuable benefits
325 derived from ecosystems and services)" (Fisher et al. 2009, p. 644; see also Gee

and Burkhard 2010). Kirchhoff (2012) agrees that "pivotal cultural values[4] cannot be integrated into the ES framework and should not be called ES" (p.E3146) because many cultural values (such as feelings of belonging, cultural heritage, and other symbolic meanings) do not correlate to ecological structures and functions. Further, the objects which carry symbolic cultural meanings (such as mountains, lakes, forests or other symbolic landscapes) are not ecosystems at all, but "shaped phenomena" (p.E3146). Kirchhoff concludes that the proper concern of an ES approach should be with instrumental, not cultural, values of nature.

Daniel et al. (2012b) are quick to respond by pointing out that:

> any attribution of a cultural ecosystem service can only be determined by considering the specific needs/wants of a particular human/social client at a given time and place in relation to the demonstrated ability of designated ecological structures and functions to contribute towards meeting those needs/wants (Daniel et al. 2012b, p.E3147).

In other words, CES are particular, individual, personal, non-scalable, non-generalisable, temporally and spatially specific. Such concessions might be fatal to CES, because they imply that cultural services and/or benefits are so small scale and peculiar that they cannot be incorporated into the wider intellectual project of identifying, measuring and mapping ES (see also Martín-López et al. 2009, Norton et al. 2012 and Portman 2013 on the necessity of ES being able to scale up). Further, Daniel et al. (2012b, p.E3147) assert that they

> are not willing, a-priori, to define cultural values out of the ES framework at the expense of further marginalising their contributions to the full range of benefits

ecosystems provide to people.

But this is only "in the absence of countervailing data", whatever that might be, which might prove cultural values to be fatally unstable and impossible to incorporate into the ES framework.

Satz et al. (2013) argue that there are five challenges that need to be addressed to secure the continued inclusion of CES in environmental assessment: accounting for interconnected benefits, dealing with plural values and cultural values that are incommensurate with monetary valuations, understanding the geographical boundedness of services and finally asking whether CES are an indulgence that will distract attention from the ES which are most crucial for human existence. Chan et al. (2012, p.13) ask whether ES researchers should bother seeking a comprehensive analytical framework that includes ill-fitting values, suggesting that "political processes will ensure that such values will be properly considered in decision-making". They rightly argue that technical black box analyses might be difficult to reconcile with deeply held values. Meanwhile, political processes may not adequately accommodate the dynamism of social and ecological processes whilst simultaneously privileging those with powerful political, social and economic interests.

These examples show some acknowledgement of dealing with the relational and affective qualities of CES, and hint at the possibility of admitting deliberative, subjective and procedural approaches (Fish et al. 2011). However, as Satz et al. (2013) acknowledge, so far these are applied in specific and limited geographical

and cultural contexts where it is necessary to discuss cultural and other ES in ways that are meaningful to local residents and stakeholders (see also Gee et al. 2010 and Potschin and Haines-Young 2013). Such work does not have a general, universal application (Portman 2013).

In light of this, it is unlikely that Fish's (2011) call to put culture on an equal footing with ecosystems in the ES approach will succeed, given the epistemic dominance of the natural sciences in framing the debate. Indeed, what is implied is that CES do not require the same attention to their management or sustainability because they are: a) not as important or essential to life as the other services; and/or b) cultural services/benefits will simply be the *collateral outcome* of a properly managed ecosystem, a by-product of the other services.

Theories and Methodologies

Expunging CES from the broader ES framework will not be necessary if the epistemic distance decay described above can be overcome. Cultural geography has much to offer to enrich dominant conceptualisations of culture within ES, bringing a rich theoretical literature on place, identity, power, and human-nature relations along with diverse techniques of data collection and analysis which attempt to understand the complex spatialities of our (more-than) human worlds. Unfortunately, cultural geography's engagement with ES or CES has yet to move much beyond bold theoretical arguments and incisive critique (Robertson 2012; Yusoff 2011).

One way forward, currently being explored by Fish et al (forthcoming) is to insist that CES have an exceptional status within the ES approach, and require

402 distinctive concepts and methods if they are to be accounted for and integrated
403 into decision making. They suggest that CES can be better aligned to the rest of
404 the ES framework by making two significant strides in their conceptualization.
405 The first is to recognize both the distinction between but interaction of
406 environmental spaces, cultural practices, and cultural benefits. The emphasis on
407 spaces, practices and benefits combines the material and non-material elements
408 of culture, thereby addressing the view that cultural values are intangible. The
409 second is to disentangle the various outcomes or benefits as the *identities* CES
410 help frame, the *experiences* they help enable and the *capabilities* they help equip.
411 Thus the benefits can be recognized as "visceral, embodied and 'felt'" (Fish et al
412 forthcoming unpaginated).
413
414 Reconceptualising CES by drawing on a richly theorized literature on the co-
415 production and reciprocity of culture-nature relations, as Fish et al attempt, is
416 one means of integrating cultural geography into ES research. However, cultural
417 geographers are unlikely to be able to effectively challenge the epistemic
418 dominance of the ES approach in the institutional spaces in which it has been
419 forged. Another approach is to become involved in the operationalization of the
420 ecosystem approach in local contexts that will raise the questions of local
421 structures of feeling, politics and poetics of place, unequal relations of power
422 that cultural geographers are well equipped, both theoretically and
423 methodologically, to answer, despite the reservations of Satz et al. (2013) and
424 others that specific case studies have limited usefulness because they cannot
425 provide generalisations. But there is already a rich literature on which to draw
426 which is concerned with, *inter alia*, the politics of the environment (Walker et al.

427 2007); knowledge controversies (Whatmore 2009); vernacular ecologies
428 (Hinchliffe 2010); and topographical readings of landscape as a material-
429 semiotic assemblage with affective qualities (Leyshon and Geoghegan 2012) that
430 can add critical and interpretative heft to understanding CES in practice. Where
431 ES is being operationalized, such work could enable a consideration of micro-
432 geographical sociospatial relations, at the quotidian scale, in which the play of
433 knowledge, identity, agency, location, and place in the understanding of local
434 environmental change can be foregrounded (Harrison et al. 2004; Lorimer
435 2003).
436

437 **Landscapes and Settings**

438 For cultural geographers interested in refining and operationalizing the ES
439 approach a further, possible route might be through a shared scholarly interest
440 in landscapes as sites were CES's are both generated and consumed and which
441 may have some imaginative and affective resonance with different communities
442 of practice (Norton et al. 2012 p.449). Amongst authors like Satz et al. (2013),
443 Potschin and Haines-Young (2013) and Schaich et al. (2010), landscape has
444 emerged as an organising concept that seems to form an epistemic bridge
445 between the natural and social sciences. Notwithstanding the multiple and
446 competing definitions of landscape across a range of academic disciplines – from
447 a scale of spatial analysis to the product of human agency, imagination and socio-
448 spatial relations (Leyshon and Geoghegan, 2013) – landscape has the potential to
449 ground the operationalization of the ES approach, lending a materiality to the
450 byzantine intellectual machinery of a reductionist science of ES. It connects
451 disciplines by operating as the site at which multi-, trans- and inter-disciplinary

conversations might be had, drawing in policy makers and landscape management professionals charged with protecting landscapes valued for their productivity, fragility, beauty or habitat. Landscapes feature in the collective imaginaries of people and communities across the planet, for whom senses of place and purpose are located in the familiar surroundings of their everyday lives. Conceptualisatuions of landscape as 'the mutual embeddedness and interconnectivity of self, body and land – landscape as the world we live in, a constantly emergent perceptual and material milieu' (Wylie, 2007, p.1–2) may also help ES researchers to see that the apparent intangibility and evasiveness of CES can be productively theorized.

Notwithstanding these possibilities for a productive intervention around the notion of landscape (broadly conceived), the UK's National Ecosystem Services Assessment (Church, et al. 2011) avoided the use of landscape in preference for 'environmental settings', developed in the work of Manfred Max-Neef (1989; 1992). These settings are the domestic garden, informal green and blue spaces, formal green/blue spaces, the nearby and wider countryside and national landscapes. This act of epistemic diplomacy attempted to sidestep landscape's extensive theoretical entanglements across a range of disciplines and seemed to offer an uncontaminated concept over which the fabric of cultural ecosystems services could be hung without snags or runs, a concept over which few if any established disciplines had any *a-priori* claim of any significance. In the NEA conception, "ecosystem cultural services are the environmental settings that give rise to the cultural goods and benefits that people obtain from ecosystems", eliding but not resolving the benefits/services problematic (UK National

Ecosystem Assessment 2011, p.81).

Conclusion

Critiques of discursive regimes from cultural geography, political ecology and other critical theoretical disciplines suggest that knowledge and meaning are always contingent and partial. Such understandings force us to step outside of ES to see it not as an *a priori* way of knowing but one which is itself a product of the politics of nature and a neo-liberal political ideology. Within ES, Fish argues that CES remained "arguably one of the least understood, and most controversial, areas of the framework" (Fish, 2011, p.674). The epistemic differences between scholars engaged in research on ES in general and CES in particular present themselves as methodological problems of identifying, mapping, quantifying and categorizing ES. Few scholars give themselves time to interrogate the fundamental assumptions of our knowledge making practices so that we can make them visible to each other. Further, the work of prediction, modeling and mapping is at odds with critical and contextual methods which emphasise the mobility, motility, and fluidity of people, ideas and objects at scales where the focus is on local structures of feeling and the personal and institutional politics of place.

Fish (2011 674) argues that "advocates of the ecosystem services framework face a steep climb in winning the hearts and minds of cultural theorists over to their world view, many of whom would be more likely to regard CES as an object of critique, rather than a concept to be embraced" (see also Chan et al 2012). This begs the question why advocates of ecosystem services would attempt to

win over cultural theorists as their own epistemic status is so dominant. One option for cultural geographers and others is to stand on the outside theorisising and problematizing without restraint. Rather, we should get inside the spaces in which a new paradigm of environmental governance is taking shape in the UK, such as the follow-on work of the National Ecosystem Assessment. This will not necessarily be comfortable. The yawning epistemological gap might be too wide to make oneself heard by shouting across it. It might be necessary to moderate theoretical and conceptual approaches, accommodating the very different approaches of others in trying to find some common ground. Nevertheless, cultural geography has a responsibility to stand up for the *applied relevance* of its work. And there won't be a better moment to do that than now.

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Figures

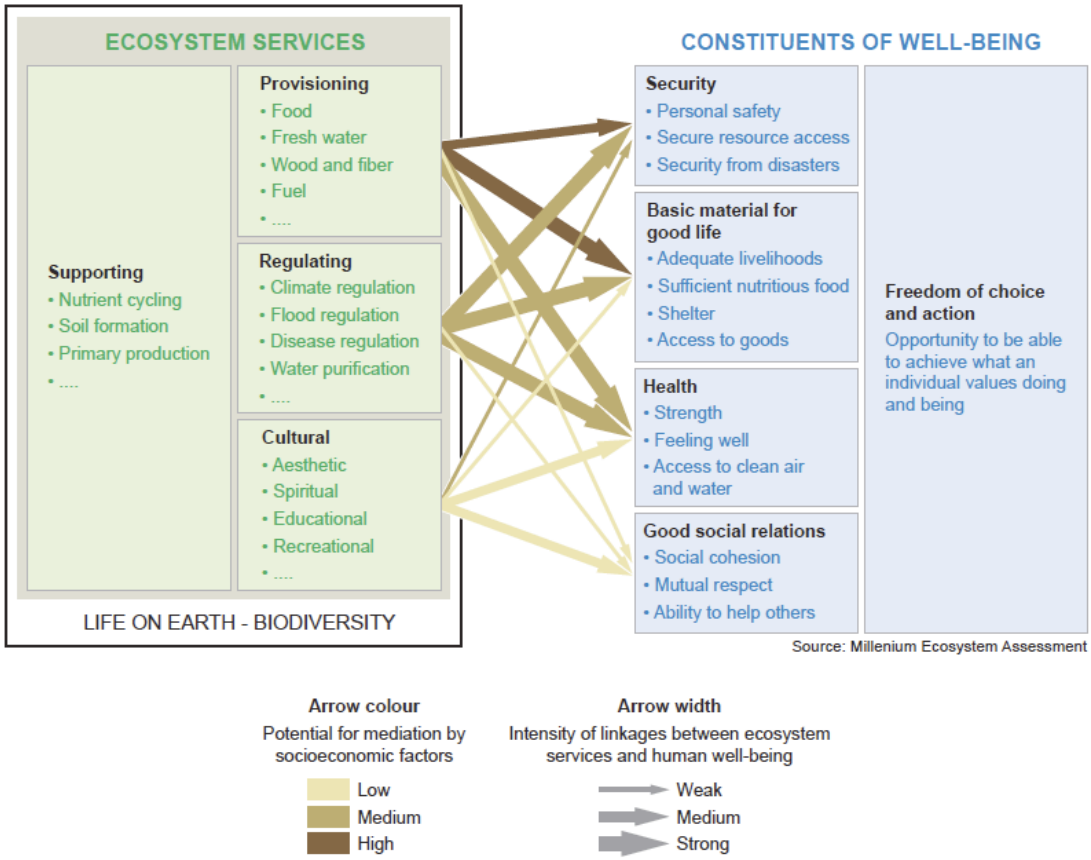
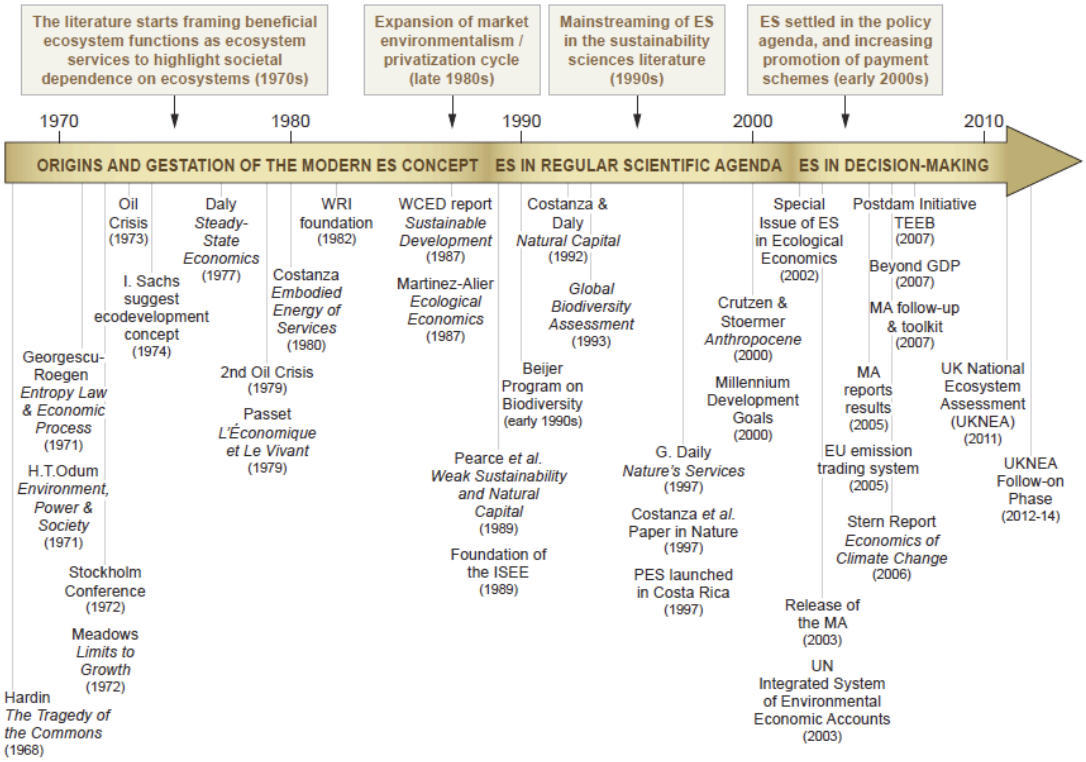


Figure 1: Linkages between Ecosystem Services and Human Well-being from Millennium Ecosystem Assessment, 2005. Ecosystems and Human Well-being: Synthesis. Island Press, Washington, DC., p.vi.



698

699 Figure 2: Stages in the modern history of ecosystem services. Gómez-Baggethun,
700 E., de Groot, R., Lomas, P.L., Montes, C. (2010). The history of ecosystem services
701 in economic theory and practice: From early notions to markets and payment
702 schemes. *Ecological Economics* 69(6) pp.1213.

703

Definition of ecosystem services	Citation	Philosophy
• "the benefits human populations derive, directly or indirectly, from ecosystem functions."	(Costanza *et al.*, 1997)	Ecosystem services = benefits
• "the conditions and processes through which natural ecosystems, and the species that make them up, sustain and fulfill human life."	(Daily, 1997)	Ecosystem services → benefits
• "the capacity of natural processes and components to provide goods and services that satisfy human needs, directly or indirectly."	(de Groot *et al.*, 2002)	Ecosystem services → benefits
• "the set of ecosystem functions that is useful to humans."	(Kremen, 2005)	Ecosystem services → benefits
• "the benefits people obtain from ecosystems."	(MEA, 2005)	Ecosystem services = benefits
• "components of nature, directly enjoyed, consumed, or used to yield human well-being."	(Boyd and Banzhaf, 2007)	Ecosystem services → benefits
• "the aspects of ecosystems utilized (actively or passively) to produce human well-being."	(Fisher *et al.*, 2009)	Ecosystem services → benefits
• "a range of goods and services generated by ecosystems that are important for human well-being."	(Nelson *et al.*, 2009)	Ecosystem services → benefits
• "Benefits that humans recognize as obtained from ecosystems that support, directly or indirectly, their survival and quality of life."	(Harrington *et al.*, 2010)	Ecosystem services = benefits
• "a collective term for the goods and services produced by ecosystems that benefit humankind."	(Jenkins *et al.*, 2010)	Ecosystem services → benefits

704

705 Figure 3: Definitions of ecosystem services and their sources commonly cited in
706 the literature. Nahlik, A.M., Kentula, M.E., Fennessy, M.S., Landers, D.H. (2012)

707 Where is the consensus? A proposed foundation for moving ecosystem service
708 concepts into practice. *Ecological Economics* 77 pp.28.
709
710 **Cultural** *Services*
711 These are the nonmaterial *benefits* people obtain from ecosystems *through* spiritual enrichment,
712 cognitive development, reflection, recreation, and aesthetic experiences, including:
713 Cultural diversity. The diversity of ecosystems is one factor influencing the diversity of cultures.
714 Spiritual and religious values. Many religions attach spiritual and religious values to ecosystems
715 or their components.
716 Knowledge systems (traditional and formal). Ecosystems influence the types of knowledge
717 systems developed by different cultures.
718 Educational values. Ecosystems and their components and processes provide the basis for both
719 formal and informal education in many societies.
720 Inspiration. Ecosystems provide a rich source of inspiration for art, folklore, national symbols,
721 architecture, and advertising.
722 Aesthetic values. Many people find beauty or aesthetic value in various aspects of ecosystems, as
723 reflected in the support for parks, scenic drives, and the selection of housing locations.
724 Social relations. Ecosystems influence the types of social relations that are established in
725 particular cultures. Fishing societies, for example, differ in many respects in their social relations
726 from nomadic herding or agricultural societies.
727 Sense of place. Many people value the "sense of place" that is associated with recognized features
728 of their environment, including aspects of the ecosystem.
729 Cultural heritage values. Many societies place high value on the maintenance of either historically
730 important landscapes ("cultural landscapes") or culturally significant species.
731 Recreation and ecotourism. People often choose where to spend their leisure time based in part
732 on the characteristics of the natural or cultivated landscapes in a particular area (MA synthesis
733 report, p.40)

734 Figure 4: Cultural Services in the Millennium Ecosystem Assessment (2005).
735 *Ecosystems and Human Well-being: Synthesis.* Washington, DC: Island Press, p.40.

736 Emphasis added.

737

Service	Human use	Enhanced or degraded	Notes	MA chapter
Cultural diversity	NA	NA		
Spiritual and religious values	▲	▼	There has been a decline in the numbers of sacred groves and other such protected areas. The loss of particular ecosystem attributes (sacred species or sacred forests), combined with social and economic changes, can sometimes weaken the spiritual benefits people obtain from ecosystems. On the other hand, under some circumstances (e.g. where ecosystem attributes are causing significant threats to people), the loss of some attributes may enhance spiritual appreciation for what remains.	C17.2.3
Knowledge systems	NA	NA		
Educational values	NA	NA		
Inspiration	NA	NA		
Aesthetic values	▲	▼	The demand for aesthetically pleasing natural landscapes has increased in accordance with increased urbanization. There has been a decline in quantity and quality of areas to meet this demand. A reduction in the availability of and access to natural areas for urban residents may have important detrimental effects on public health and economies.	C17.2.5
Social relations	NA	NA		
Sense of place	NA	NA		
Cultural heritage values	NA	NA		
Recreation and ecotourism	▲	+/−	The demand for recreational use of landscapes is increasing, and areas are increasingly being managed to cater for this use, to reflect changing cultural values and perceptions. However, many naturally occurring features of the landscape (e.g. coral reefs) have been degraded as resources for recreation.	C17.2.6 C19

▲ Increasing (for human use column) or enhanced (for enhanced or degraded column)

▼ Decreasing (for human use column) or degraded (for enhanced or degraded column)

+/− Mixed (trend increases and decreases over past 50 years or some components/regions increase while others decrease)

NA Not assessed within the MA. In some cases, the service was not addressed at all in the MA (such as ornamental resources), while in other cases the service was included but the information and data available did not allow an assessment of the pattern of human use of the service or the status of the service.

738

739 Figure 5: Trends in the Human Use of Ecosystem Services and Enhancement or
740 Degradation of the Service Around the Year 2000. Millennium Ecosystem
741 Assessment (2005). *Ecosystems and Human Well-being: Synthesis.* Washington,
742 DC: Island Press, p.43.